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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,208	02/17/2004	Xiaohua Shi	Intel/17851	9918

34431 7590 04/10/2007  
HANLEY, FLIGHT & ZIMMERMAN, LLC  
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CHICAGO, IL 60606

EXAMINER
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VO, TED T

ART UNIT	PAPER NUMBER
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2191

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/780,208	<b>Applicant(s)</b> SHI ET AL.	
	<b>Examiner</b> Ted T. Vo	<b>Art Unit</b> 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/17/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### DETAILED ACTION

1. This action is in response to the communication filed on 02/17/2004.

Claims 1-30 are pending in the application.

### *Specification*

2. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

"TECHNICAL FIELD" and "BACKGROUND", should be rearranged in form of heading section (f). It also requires having "BRIEF SUMMARY OF THE INVENTION".

Accordingly, the specification is objected to. An amendment to the specification pursuant to 37 CFR 1.77(b) is required.

- The use of the trademark/trade name such as Java, Linux, JVM, etc has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. The claims 1-30 are rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter.

As per Claims 1-10: Claims 1-10 recite a generic method. A claimed invention as a whole must accomplish a practical application. The claims simply recite, "a method comprising", no practical application is mentioned or founded in this generic method. Furthermore, a statutory method claim requires producing a "useful, concrete and tangible result". State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. In regard to the term "tangible result", the method claim must produce a real-world result.

In this claimed method as a whole, it merely recites allocating a first node, storing a value, and identifying a second node. Its acts do not differ from the generic acts, adding, subtracting, multiplying, etc. No real-world result is found. The method solely is an arrangement of elements in a program per se. Fail to produce a tangible result; the method of claims 1-10 merely recites an abstract idea.

As per Claims 11-30:

Even these claims recited an apparatus and machine readable medium associated with a processor; the claims do not produce a practical application. The claims are solely converted from the method of claims

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1-10, which are identified as not accomplish a practical application; therefore, the claims merely recite abstract ideas.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fang et al., "Efficient Global Object Space Support for Distributed JVM on Cluster", IEEE, 2000.

Given the broadest reasonable interpretation of followed claims in light of the specification.

As per Claim 1: Fang discloses,

*A method comprising: allocating a first node (See p. 3, the section 2.3, Figure 1, node 0); storing a value in a thread-local variable field in the first node (See Figure 1, i.e., object value/reference of 'a' by thread T1, where the rectangular notation represent Java thread stack that store the values reachable by the thread); and identifying a second node ( Node 1 is second, and note 1 is also identified by a of thread T1 ) in a data structure allocated by a runtime environment while an operating system associated with the runtime environment (i.e. an access cause by T2, as explained in Figure 1) is in an unlocked condition (See sec. 3, start at p. 3, for example, "Upon releasing a lock, all updated values...").*

As per Claim 2: Fang discloses, *A method as defined in claim 1, further comprising: storing a second value (i.e. the execution of c associated with the thread T1) in a stack address field in the first node (See sec. 2.3, rectangular notation indicated as Java thread stack frame, where stack is used to store address values of object reference in the thread stack), wherein the stack address field is associated with a stack allocated by the operating system; and establishing a relationship between the first and second nodes in*

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*the data structure based on a value of the stack address field (i.e. the tree as seen in the Node 0 structure).*

As per Claim 3: Fang discloses, *A method as defined in claim 2, wherein the relationship between the first and second nodes comprises a value in a stack address field in the second node that is greater than the second value in the stack address field in the first node (i.e. address value of object c which is reachable by thread T1 and T2).*

As per Claim 4: Fang discloses, *A method as defined in claim 1, wherein the thread-local variable field comprises a high-level language data structure (For example multi-thread Java Program (see Abstract)).*

As per Claim 5: Fang discloses, *A method as defined in claim 4, wherein the high-level language data structure comprises at least one of a C/C++ structure, a C++ class, a Java class, and a C# class (i.e. multi-thread Java Program (see Abstract)).*

As per Claim 6: Fang discloses, *A method as defined in claim 1, wherein the thread-local variable field comprises an indirect reference (Whatever the object reference stored in thread stack, depending upon the tree structure).*

As per Claim 7: Fang discloses, *A method as defined in claim 6, wherein the indirect reference comprises at least one of a C/C++ pointer, a Java reference, a C++ reference, a C# reference, and an assembly language indirect memory reference (e.g. "Java reference", as in the manner of the reference).*

As per Claim 8: Fang discloses, *A method as defined in claim 1, wherein the first node comprises at least one of a statically allocated node and a dynamically allocated node (refer to the tree structure of Figure 1).*

As per Claim 9: Fang discloses, *A method as defined in claim 1, wherein the data structure comprises at least one of a linked list-based data structure, an array, a queue-based data structure, a stack-based data structure, and a tree-based data structure (Refer to the stack-based as of JVM disclosed in the manner of the reference).*

As per Claim 10: Fang discloses, *A method as defined in claim 1, wherein the runtime environment comprises a virtual machine (The reference is a JVM runtime environment).*

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As per Claims 11-20: Fang discloses the apparatus of claims 11-20. See rationale addressed in the rejection of claim 1-10.

As per Claims 21-30: Fang discloses the machine readable medium of claims 21-30. See rationale addressed in the rejection of claim 1-10.

***Conclusion***

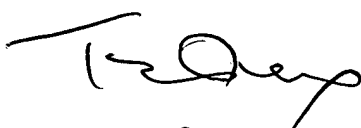
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (571) 272-3706. The examiner can normally be reached on 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708.

The facsimile number for the organization where this application or proceeding is assigned is the Central Facsimile number **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTV  
March 30, 2007

  
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PRIMARY EXAMINER  
TECHNOLOGY CENTER 2100